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ABSTRACT

Occupational education has an impact on students in the form of economic returns to the individual and society through the development of technical skills. The Association of Vocational Education Administrators (AVEA) launched this study to test the hypothesis that vocational programs also have a positive impact on student's social, affective and nontechnical development. The Outcomes Project was carried out by the Cornell Institute for Occupational Education using secondary school students. Phase 1 identified beneficial outcomes not directly related to technical skills. From this phase seven hypotheses about vocational education were formed, including the hypothesis that vocational education students may have more positive attitudes about school. Phase 2 developed a prototype measure of outcomes. The instrument was drafted, field tested, and revised. Phase 3 refined the prototype instrument and administered the final questionnaire to occupational and nonoccupational students at the end of their sophomore and senior years. Data collection, analysis, factor matching, scale building and the preliminary results and validity are examined in this paper. Despite great reductions in attitude and value items, the scales showed moderate to high statistical reliability. (CM)

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DEVELOPING AN INSTRUMENT TO ASSESS NON-TECHNICAL OUTCOMES OF OCCUPATIONAL EDUCATION

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DEVELOPING AN INSTRUMENT TO ASSESS NON-TECHNICAL OUTCOMES OF OCCUPATIONAL EDUCATION

Occupational education has a variety of impacts on students and society. Foremost among these are the economic returns to the individual and society through the development of occupational technical skills. Certainly these are among the reasons for the tremendous growth and student acceptance of vocational programs over the last ten to fifteen years. But there appear to be other reasons, too. McCormick (1980) suggests that students and parents feel that occupational education may also result in "improved self-image, an increase in the sense of direction, an increasing maturity, and, in general, the development of a more positive attitude towards school."

This study derives from the general hypothesis that vocational programs also have a positive impact on the social, affective, non-technical development of their students. It was launched by the Association of Vocational Education Administrators (AVEA) in New York in order to determine the impact of secondary high school level occupational programs on the personal and career development of students. Work on the project was carried out by the Cornell Institute for Occupational Education at Cornell University, and funded by the New York State Education Department. This study, hereafter called the Outcomes Project, was conducted in AVEA President McCormick's (1980) words

> because we realized that, if we believe that there are outcomes of vocational education other than technical training, we should learn how to talk about them so they can somehow be quantified and eventually used in program evaluation. Vocational educators need to be able to describe with clarity and surety the many facets of vocational education that affect students. We must not dismiss those beneficial effects of vocational education that are beyond "Employability Skills" simply because they pose problems in measurement and definition.

Overview of the project

The Outcomes Project has been and is being conducted in three phases. The goal of Phase I was to identify beneficial outcomes of occupational education other than those directly related to the development of technical skills. The goal of Phase II was to develop a prototype instrument to measure the identified outcomes.

Phase III consisted of two stages. The objective of the first stage was to develop a short, reliable, valid instrument to assess non-technical outcomes of occupational education. Major activities of this stage of Phase III focused on:

- Administering the prototype instrument (from Phase II) to a sample of occupational education and non-occupational education students in New York State.
- Designing a practical, efficient procedure to refine the instrument, a procedure which features use of rarely-used factor matching techniques and a coordinated use of SPSS subprograms to build short, reliable scales for measuring non-technical outcomes.
- Analyzing the results from the test administration to reveal significant differences between occupational and non-occupational students.

The second stage of Phase III is now underway. In this stage, the final instrument will be administered to occupational and non-occupational students at two times: at the end of their sophomore year and at the end of their senior year. (In New York, occupational students typcially enter an occupational program at the beginning of their junior year and split their school day between their occupational school at a regional service center where they receive instruction in technical subjects and their "home school" where they receive instruction in traditional academic subjects.) This will permit researchers to compare occupational students with non-occupational students both before and after the occupational students were in their program

and it will also allow researchers to assess the changes in occupational students by comparing them prior to their enrollment in an occupational program and two years later when they complete their occupational studies. Plans call for over 10,000 students to be surveyed eventually with the bulk of the data coming from the questionnaire, supplemented with a few student interviews. The initial administration of the final version of the instrument was conducted in May, 1981. Data analysis results from that administration are only now being completed and are not yet publicly available. (Additional information on the project and the results may be obtained by writing Dr. James A. Dunn, Director, Institute for Occupational Education, Cornell University, Stone Hall, Ithaca, New York 14853.)

Findings reported in this paper focus on the first stage of Phase II activities: prototype instrument administration, the design of a questionnaire refinement procedure, and initial findings which compare occupational and non-occupational students. So that the reader may better place these activities in their proper context, the next two sections of this paper briefly review Phases I and II.

Background: Phase I

Phase I of the project attempted to identify the most probable social, affective, and other non-technical outcomes of occupational education, and to aid in identifying or developing instruments for measuring those outcomes. Phase I began with interviews of various relevant populations: occupational education program directors (N = 49); secondary occupational education teachers (N = 35); occupational education students in all phases of study (N = 153); program graduates (N = 13); and parents of occupational education students (N = 12). A review of the literature revealed little evidence directly relevant to the questions of this study, but did generally support

the hypotheses outlined below. (A more complete, detailed review of the findings from both the interviews and the literature search is outside the scope of this paper. The interested reader is referred to the Phase I and II reports listed in the references.)

The major outcome of Phase I was a set of seven hypotheses about vocational education programs. These hypotheses suggested that occupational education students, as compared with non-occupational students, may

- Have more positive attitudes towards school. These attitudes refer to teachers, other students, the value of schooling, and enjoyability of school.
- Show increased increased confidence in their own abilities, including a feeling that they will know how to handle various situations.
- Display an increased ability to deal with situations which are stressful to them, i.e., they are better able to perform under stress.
- Show a greater understanding of the social consequences of their actions. This understanding includes an awareness that an individual's behavior affects other people, and an acceptance of personal responsibility.
- Become more capable of establishing trusting relationships with relevant persons. This includes skills in communicating and style in communicating. In other words, the students are more capable of having relationships with significant adults and peers that are based on mutual respect, trust, and tolerance.
- Be more able to impose personal standards of quality, both objective and subjective, in their work. This includes a willingness to have their work evaluated by others.
- Have greater skills for making decisions and solving problems, especially regarding employment and career. This includes a knowledge of potential sources for job leads, awareness of how to present oneself in a job interview, and ability to evaluate a job according to one's preferences and needs.

Background: Phase II

In Phase II, a draft of an instrument to measure these outcomes was developed, tested, and revised. This phase began with writing items to test

the outcomes identified in Phase I. Items were reviewed by project staff and other experts. Because of the large number of items and item formats which were to be tested, four forms were constructed, two each for occupational and non-occupational students. Each form contained 51 attitude items and 12 demographic items. Occupational student forms had a additional five items to tap occupational student attitudes towards their "home school" as contrasted with their attitudes towards their occupational high school. In spring, 1980, students were randomly sampled from schools in New York state. Only seniors were surveyed in this test, since the focus was on outcomes at the end of the occupational program. A total of 739 seniors (387 occupational and 352 non-occupational) responded to this survey.

Results from the test clearly showed the need for a consistent response format for the attitude items, instead of the mixture of formats that was used. Data from attitude items with a consistent response format were factor analyzed. The resulting eight factors suggested that the instrument was measuring some, but not all, of the outcomes it was intended to measure. It also showed the need to expand the item pool, because of the few items loading on each factor and because not all outcomes were being measured. Both questionnaire results and interviews suggested that items on attitude towards school had to be separated from other items because they had a specific focus (i.e., the occupational or home school) rather than being more general or dealing with feelings about oneself or the surrounding culture.

As a result of this tryout, the questionnaire was substantially revised and lengthened. A core set of 29 items was retained from the Phase II tryout. Project staff located or wrote 96 more items to bring the total to 125. Demographic items (e.g., sex, age, program, etc.) were expanded somewhat and revised for clarity.

These items were distributed across five parts for the new occupational student form of the questionnaire. A sample of this prototype questionnarie is attached to this paper. Parts A and B contained identical items, each part consisting of 18 items regarding attitude towards school. Part A concerned the student's occupational school and Part B his home school. Part C consisted of ten items on work values derived from the National Longitudinal Study of the High School Class of 1972. Part D contained 97 items intended to test the remaining outcomes of interest. Demographic items were in Part E. Items in Parts A, B, and D used a six-point "strongly agree - strongly disagree" Likert-type response scale. The non-occupational student form differed only in that it had only one of the sets of attitude towards school items.

Phase III

As indicated above, Phase III consists of two stages. This paper is concerned with the first stage. In this stage, the prototype questionnaire resulting from Phase II was administered to a broad sample of students, the data from it analyzed, and the instrument revised and considerably shortened. This resulted in a questionnaire with short but highly reliable and valid scales for measuring outcomes relevant to this study, as well as permitting preliminary analyses to test differences between occupational and non-occupational students. A description of the instrument development process and a brief discussion of these preliminary results are the topics of the remaining sections of this paper.

Gathering the data

The prototype questionnaire was administered to both sophomore and senior occupational and non-occupational students selected randomly from schools in New York state. A total of 810 students (380 occupational, 430 non-occupational)

completed usable questionnaires.

Initial data analysis

Questionnaire data was coded and keypunched, and then converted to an SPSS system file on a computer tape. SPSS (Statistical Package for the Social Sciences, Nie, et. al., 1975; Hull and Nie, 1979) is a widely used, highly versatile package of subprograms which can perform a wide range of statistical analysis procedures. It is especially appropriate for use with questionnaire-type data. It was used throughout this analysis and subprograms from it will be referenced in this discussion.

Once the system file was set up, a frequency distribution of responses to all items was computed. Also, responses for each item were cross-tabulated by type of student (i.e., occupational or non-occupational). Results were examined to determine the general nature of the responses and to locate any items with invalid responses or a high number of missing responses, indications of a bad item. No items were eliminated on this basis and all items were retained for further analysis.

The scale building (discussed in more detail later) began with a factor analysis of the parts of the instrument. For analysis purposes, both the occupational and non-occupational forms of the questionnaire were considered to have five parts. Parts A and B both consisted of the same 18 items asking about students' attitudes towards their occupational school and home school, respectively. Since non-occupational students attend only one school, these 18 items were presented to them only once in the questionnaire. To make the data analysis easier, their responses were entered in the system file twice to correspond to the occupational student responses for Parts A and B. Parts C, D, and E were the same for occupational and non-occupational students. As indicated previously, Part C consisted of ten items concerning

the values which affect a student's choice of work. Part D consisted of 97 items covering a wide range of social and psychological attitudes. (The attached sample shows 98 items but this is due to a typographical error - one item is accidentally presented twice.) The final section, Part E, consisted of ten items dealing with such demographics as sex, race, program of study, socio-economic status, and post-high school plans. These demographic items will be useful in later analyses of the data but did not enter into the scale building activities. Only the first four parts, the attitude and values items, are of concern here.

The scale building acitivies began with a series of factor analyses using the FACTOR subprogram of SPSS. Factor analysis is a complex statistical procedure which, properly used, permits the investigator to detect patterns and structures that may be present in a large and seemingly unrelated set of data, such as responses to questionnaire items. In this instance, the factor analyses were conducted to develop item groupings which could be used as the basis for building scales and to determine which items would be most appropriate for initial inclusion in those scales. Because Parts A, B, C, and D were considered to be conceptually separate, factor analyses were conducted for each part in turn. In addition to conducting such analyses for the total group of respondents, the analyses were run separately for the occupational students and for the non-occupational students who were enrolled in academic and general programs. Those few students who were enrolled in home school vocational or technical programs (e.g., business and office, home economics)were eliminated so as to provide a cleaner contrast between occupational and non-occupational students. The factor analyses conducted for each of these two groups were done in order to determine which factors were similar for each group. Simply conducting a

factor analysis for the respondent group as a whole was not considered sufficient, since a factor which showed up for the total group might not show up for either of the two subgroups. Thus, any scale based on that factor would not be valid for that subgroup.

Factor analysis, although a highly developed statistical technique, still requires a certain amount of judgment to decide how many factors to retain for further analysis, how to interpret the meaning of those factors, and which items to include for further scale building work. In this analysis, the number of factors was decided using three criteria: the Kaiser-Guttman criterion (incorporated automatically in the SPSS FACTOR subprogram) which retains all factors with an eigenvalue greater than 1.00, the Cattell (1978) scree test, and an examination of the number of items with high loadings on the factors. In general, any item with a loading with an absolute value of 0.35 or higher on a given factor was retained for further scale building activities on that factor. Factors which passed those tests were examined and any factor which could not be reasonably interpreted to represent a psychological construct was eliminated. This latter judgment did not eliminate any of the factors which had four or more heavily loading items.

Following the initial factor analysis for the group as a whole, efforts were made to match factors derived from the separate factor analyses for the occupational and non-occupational-academic-general student groups. This was not a great problem for Parts A and B, which measure attitudes towards school. The analyses for the total group and the two student subgroups produced four clear, unambiguous factors. The amount of variance explained for each factor and the loadings of various items on each factor showed some differences between the groups but, in general, it was clear that the same four factors fit each group well.

The results for the items on work valued, Part C, showed only one factor which was clearly common to the total respondent group and to the two student subgroups. Two other factors were produced for the total group and for the occupational subgroup and three more for the non-occupational-academic-general subgroup. These other factors for the subgroups were so clearly dissimilar that no attempt was made to match them. Items not loading highly on the first factor were grouped under the two factors resulting from the total group analysis for further scale development. Apparently the ten items were either from a homogenous domain, or they were not sufficient to explore sets of work values for the groups involved.

Results for Part D required considerably more work and judgment. The SPSS FACTOR subprogram produced a total of 14 factors, based on the Kaiser-Guttman criterion. However, the scree test and the examination of the factor loadings suggested that ten factors, composed of 55 items, might be more meaningful and useful for scale building. This judgment was supported by an examination of the results of the separate analyses conducted for the two student subgroups. An examination of the factor loading patterns on the two analyses clearly showed similar factors for the two group, but these were not identical and, in a few cases, it would take a considerable amount of subjective judgment to determine which factor from one subgroup matched which factor from the other subgroup. This brought up an interesting question. Was there a statistical technique which could assist this judgment, i.e., which could provide a rational, statistical method for matching factors derived from a factor analysis of data on a set of item responses from one group of persons with factors derived from a factor analysis of data on the identical set of items but with responses given by a different group of persons? Answering this question proved to be practically a separate project

unto itself. Because it may prove valuable to others, the answer is discussed in somewhat more detail here.

Factor matching

A search of the literature revealed a number of papers on factor matching (e.g., Kaiser, Hunka, and Bianchini, 1971; Pinneau and Newhouse, 1964; Tucker, 1958; Wrigley and Neuhaus, 1955). Only two methods were found, however, which proved both simple to use and easily interpretable. Both can be computed easily using SPSS data transformation facilities or subprograms supplemented with a hand calculator. The first is Burt's (1941) congruence coefficient which had to wait nearly thirty years for a significance table so it could be interpreted (Schneewind and Cattell, 1970; Cattell, 1978). It is written

$$r_c = \Sigma b_{j_1} b_{j_2} \Big/ (\Sigma b_{j_1}^2 \ \Sigma b_{j_2}^2)^{\frac{1}{2}}$$

where b_{j_1} and b_{j_2} are the loadings of variable a_j on the compared factors F_1 and F_2. This produces a coefficient for each possible pair of compared factors.

In practice, this is fairly simple to compute using SPSS data transformation facilities and a hand calculator. First, the factor loadings for each variable for the two subgroups to be compared were keypunched. In this case, there were 55 items still in the analysis following the initial factor analyses. For each item, twenty loadings were punched, ten from the occupational student subgroup and ten from the non-occupational-academic-general student subgroup. (Incidentally, the two groups to be compared need not have the same number of factors; it just happened that way in this analysis.) SPSS data transformation facilities, including DO REPEAT loops, were used to compute

the cross-products $b_{j_1} b_{j_2}$ and the squared loadings $b^2_{j_1}$ and $b^2_{j_2}$ for each item. The subprogram CONDESCRIPTIVE provided the sums. It was simple work with a hand calculator to compute the 100 congruence coefficients from this information. Their statistical significance was determined from the table in Cattell (1978).

The second factor matching approach is a nonparametric index, Cattell's salient variable similarity index (Cattell, et. al., 1969; Cattell, 1978). It classifies all variables by loadings on a given factor as salient or nonsalient. The salient loadings are classified as positive or negative. Nonsalient loadings fall within what is called the hyperplane, the area within which loadings are considered to be not significantly different from zero. It is Cattell's position that a factor either loads on a variable or it does not. The "presence of low but significant loadings not far from the true hyperplane, is simply an appearance due to several other factors happening to operate simultaneously on the same variable," reducing its loading on that particular one. Cattell suggests different ranges for defining the hyperplane, but considers + or - 0.10 to be the "shrewdest" choice. Positive salient variables have factor loadings at or above + 0.10. Negative salient variables have factor loadings at or below - 0.10. Variables between - 0.10 and + 0.10 are considered to be in the hyperplane. Thus, each loading can be classified into one of three categories. Figure 1 shows the resulting table and the formula for the salient index.

Cattell warns of some complicatedness and uncertainty of interpretation in this formula unless certain conditions are met. First, the same number of variables should lie in the hyperplane of the factors being compared. It may be necessary to adjust the hyperplane for one or both of the two factors being compared to achieve this. Second, the number of positively loaded

	Factor 2			
Factor 1	Positive Salients	Hyperplane	Negative Salients	
Positive Salients	f_{11}	f_{12}	f_{13}	n_1
Hyperplane	f_{21}	f_{22}	f_{23}	n_2
Negative salients	f_{31}	f_{32}	f_{33}	n_3
	$n_{.1}$	$n_{.2}$	$n_{.3}$	n

NOTE: The f's indicate joint frequency, with the same n variables in both factors.

Cattell gives the formula for the salient index as follows:

$$s = \frac{f_{11} + f_{33} - f_{13} - f_{31}}{f_{11} + f_{33} + f_{13} + f_{31} + \frac{1}{2}(f_{12} + f_{21} + f_{23} + f_{32})}$$

FIGURE 1

TABLE AND FORMULA FOR CATTELL'S
SALIENT VARIABLE SIMILARITY INDEX

and negatively loaded salients should be equalized in a factor by reflecting the sign of the original set of variables until this is achieved. In practice, this appears to be very difficult to do.

The SAS RECODE feature was used to recode the loadings on each variable (item), loadings - 0.10 or lower being recoded as 1, the hyperplane loadings recoded as 2, and loadings + 0.10 or higher as 3. The CROSSTABS subprogram was then run to obtain the frequencies in each cell, and a hand calculator used to compute the 100 salient indexes.

The results of these two factor matching methods are presented in Tables 1 and 2 at the end of this paper. It is apparent that the congruence coefficient provided, in this case at least, more easily interpretable results. It appears that the adjustments to the "hyperplane window" which Cattell warned about and which were judged too time-consuming and laborious to make for this analysis with its 55 variables and 100 indexes, do have an effect on the results.

Of the resulting 100 congruence coefficients, 13 were significant at the .001 level or below. Of the 100 salient indexes, 33 were significant at .001 level. Twelve of the 100 comparisons were significant for both statistics; 21 were significant only for the salient index; and just one was significant only for the congruence coefficient. The congruence coefficient was judged to be easier to compute and interpret and to be a more conservative test for factor matching.

Results showed that nine of the ten factors from each group could be matched. For example, occupational subgroup Factor 3 matched non-occupational academic-general subgroup Factor 2. The nature of the high loading items on this factor suggested that it measured social confidence. These nine factors became the basis for further scale building activities for items derived from Part D.

Scale building

With the identification of the scales present in the items from Parts A, B, C, and D, the task of building scales could proceed. The scale building process was based on the recommendations of McKennell (1977). This process begins with the identification of scales and items loading on those scales, in a manner similar to the factor analyses which were already completed. However, as McKennel notes, it is not enough simply to construct a scale consisting of all the high loading items on a particular factor. One must also consider the correlation between each item and the scale score (Likert, 1932). The scale score is simply the sum of a person's responses to the set of items which compose the scale; the sum is usually divided by the number of items on the scale so as to place the scale score back on the same metric as the original response scale. More importantly, the investigator must also consider the contribution each item makes to the scale's statistical reliability. A high loading for an item on a factor analysis does not automatically mean that it contributes to the scale's reliability in a positive way. Some high loading items may actually reduce the scale's reliability. THE SPSS RELIABILITY subprogram offers a simple way of conducting just such an analysis.

A total of twenty scales were analyzed for the total group and for each of the two student subgroups. These twenty scales comprised four scales each for Parts A and B, three scales for Part C, and nine scales for Part D. Any item with a loading with an absolute value of 0.35 or greater was initially included in its respective scale. The SPSS RELIABILITY analysis produced statistics showing both the corrected item-scale correlation (i.e., the correlation between the item and the scale score computed with the item removed) and the effect of deleting each item on the scale's reliability

as measured by coefficient alpha. Any item which had a low correlation with the scale score or which caused the alpha of the total scale to rise if it were omitted, was dropped from the scale, and the scale reanalyzed. This resulted in the retention of 16 attitude towards school items, spread across four scales; and 40 items from Part D spread across nine scales. Only the first work values scale from Part C produced adequate results, but for the sake of completeness, reliabilities for the remaining two scales were also computed. (A decision was made later to retain all ten items since they had already been validated in a national survey and the results for each item could be compared to the national results.)

Each scale was assigned a label describing the nature of the construct which was judged to be measured by the items in it, and a name reflecting the source of the items (i.e., Scales A1 to A4 are composed of items from Part A, B1 to B4 are composed of items from Part B, and so on).

The scale names, labels, and items are listed in Table 3. The reliabilities of each scale for the total group and for the two student subgroups are given in Table 4. It can be seen from this table that the reliabilities range from 0.52 to 0.85 with a median of 0.72 for all students and 0.675 for occupational students. These reliabilities are rather high for scales with so few items.

The validity of these scales was further tested by examining their intercorrelations. Correlations were computed for the scales dealing with attitudes toward school (Parts A and B). Since these parts were identical for students in the home schools, only the four Part A scales were intercorrelated for those respondents. The results are displayed in Table 5. For occupational students, the results are particularly interesting. The reader will remember that Part A asked the occupational students their attitudes

towards their occupational school, and Part B their attitudes towards their home school. The four scales consisting of items from Part A correlate highly with each other and the four scales consisting of items from Part B correlate highly with each other. However, the Part A scales do not correlate highly with the Part B scales. This would seem to demonstrate that the A and B scales are relatively independent and thus measure different constructs, even though they are composed of the same items. As might be expected, the scales consisting of Part A items correlated highly with each other for the non-occupational-academic-general students also.

Since Part C produced only one reliable scale, it was decided not to treat it as a set of scales on the final instrument. Owing to the intrinsic interest of students' work values for this project, and the national validation of the items, it was decided to keep all the items on the final questionnaire form and to deal with them as a descriptive category rather than as separate scales.

The nine Part D scales were also correlated. These results are shown in Table 6. In general, as the number of cases in such as analysis goes up, the magnitude of the correlation needed to achieve statistical significance goes down. A total of 780 persons had valid responses which could be used in this correlation table. For 780 cases, a correlation of 0.12 is significant at the .001 level, but a correlation that low does not describe a strong relationship. Table 6 shows the intercorrelations of scales on Part D.

The strongest correlation in the table is 0.39 and the median of the 36 values is less than 0.22. Thus the median strength of relation among these scales is less than five percent, which confirms the functional

independence (i.e., divergent validity) of the scales.

Preliminary comparisons

One final question remained in the data analysis. What are the differences between the occupational and non-occupational students on the scales? The results of this analysis are shown in Table 7. This table compares the mean scale scores for the occupational students with all the non-occupational students and with those non-occupational students enrolled in academic and general programs. The scale scores for all the attitude towards school scales (A1 through B4) are statistically significant, most at the .0001 level or beyond. Occupational students consistently rate their occupational school higher, and their home school lower, than the non-occupational students do. It is also interesting to note that the non-occupational students' means always have values which are between the means for occupational students and non-occupational-academic-general students. This suggests that the students enrolled in non-occupational schools but who are in vocational and technical programs do, in fact, pull the scores towards the occupational students' means. It gives support for the strategy followed in the factor analysis and scale building of excluding students taking vocational and technical programs in the home schools due to their potentially contaminating effects on the results.

Differences between occupational and home school students on Part C were statistically significant also, with occupational students giving more emphasis to material values in selecting a life's work (Scale C1). The low reliabilities of Scales C2 and C3 render their results problematic.

Results for the Part D scales are interesting as much for the non-significant differences as for the significant differences. Mean scale scores for occupational students did not differ significantly from those

for non-occupational students or from those for non-occupational-academic-general students with respect to motivation to learn, social confidence, trust in others, and peer support (Scales D1 to D4, respectively). They were significantly different with respect to confidence in career goals, reaction to pressure and stress, disaffection, and confidence in job-seeking skills (Scales D5 to D8, respectively). Occupational students perceived thenselves as having clearer career goals and being more confident in their job-seeking skills. However, they also saw themselves as reacting slightly less well to pressure and stress, and being slightly more disaffected. The final scale, D9 Privacy of Feelings, showed a significant difference between occupational students and non-occupational students as a whole, but not between occupational students and non-occupational-academic-general students. The differences in mean scores suggest that occupational students feel they keep their feelings and problems more to themselves.

Some caution should be exercised in interpreting these significance tests, however, since they are based on one cross-section of the data and do not represent the full design for the Phase III statewide assessment. In that design, the main comparisons will be between sophomores and seniors to determine the changes which students go through.

Summary

In summary, the items from Parts A, B, C, and D of the questionnaire were factor analyzed and the results used as the basis for still further analysis to build highly reliable scales. In the process, the number of of attitude and value items was reduced from 125 unduplicated items to only 66 unduplicated items. Despite this great reduction, the scales which were developed all showed a moderate to high statistical reliability. Intercorrelations of scale scores for occupational students' attitudes

towards their occupational and home schools suggest that these attitudes are separate constructs. Comparisons of scale scores for occupational and non-occupational students show a number of interesting differences and similarities. Results also supported the strategy of excluding from some parts of the analysis those students in non-occupational schools who are enrolled in vocational or technical programs.

TABLE 1

CONGRUENCE COEFFICIENTS
FOR COMPARISON OF FACTORS FROM
OCCUPATIONAL AND NON-OCCUPATIONAL STUDENT GROUPS

Non-Occ Student Factors	Occ Student Factors									
	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10
K1	94*	49	26	43	-25	-35	15	23	33	05
K2	35	38	87*	29	-28	-23	40	39	42	00
K3	47	26	23	88*	-09	-16	10	26	13	00
K4	29	21	51	23	-32	-05	19	84*	34	03
K5	27	54*	42	14	-12	-32	85*	16	32	-12
K6	41	79*	33	27	-18	-21	50	16	38	19
K7	-22	-19	-31	-10	71*	65*	-18	-04	01	19
K8	70*	38	24	40	-39	-22	10	23	05	-29
K9	32	75*	25	09	02	-41	37	05	04	-31
K10	-40	-17	-30	-18	55*	61*	-07	-09	02	-03

NOTES:

1. Leading decimal points have been omitted.

2. An asterisk (*) indicates a congruence coefficient significant at the .001 level or beyond.

TABLE 2

SALIENT VARIABLE SIMILARITY INDEXES
FOR COMPARISON OF FACTORS FROM
OCCUPATIONAL AND NON-OCCUPATIONAL STUDENT GROUPS

Non-Occ Student Factors	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10
K1	86*	52*	41*	44*	32	43*	34	29	43*	07
K2	52*	52*	52*	52*	21	11	52*	37	54*	11
K3	70*	37	38	45*	25	39	37	28	33	04
K4	39	38	63*	31	41*	23	29	45*	23	00
K5	36	52*	47*	23	04	31	55*	20	46*	16
K6	53*	61*	49*	33	11	28	58*	21	44*	17
K7	28	40	42*	08	65*	49*	27	05	00	04
K8	63*	34	35	36	37	30	24	29	22	14
K9	34	67*	28	14	08	36	36	10	16	00
K10	46*	33	39	29	36	32	32	00	09	15

NOTES:

1. Leading decimal points omitted.

2. An asterisk (*) indicates a salient index significant at the .001 level or beyond.

TABLE 3

FINAL SCALES AND ITEMS

Scale A1/B1. General Attitude Towards School Experience

1. I enjoy going to this school.
13. I look forward to going to this school most days.
3. Most of my classes here are a waste of time.*
14. The things I learn at this school are important for my future.
2. I feel like a real part of what goes on at this school.

Scale A2/B2. Attitude Towards Teachers and Program

15. Teachers at this school will take time to help the students.
14. The things I learn at this school are important for my future.
17. Teachers at this school encourage us to do our best.
7. My teachers at this school understand the problems of students pretty well.
3. Most of my classes here are a waste of time.*
16. Doing well in classes at this school is not worth the effort.*

Scale A3/B3. School Social Relations

5. Students treat each other with respect at this school.
18. Students here will help each other to learn.
12. Students are treated as adults here.
2. I feel like a real part of what goes on at this school.
6. If another student at this school found something of mine, he or she would probably return it.

Scale A4/B4. Student-Adult Relations

11. The adults here do not trust the students.*
4. Teachers here put students down.*
12. Students are treated as adults here.
9. Rules are not enforced fairly here.*

Scale C1. Work Values - Materialistic

5. Good income to start or within a few years.
3. Job openings available in the occupation.
9. Opportunity for promotion and advancement, in the long run.

Scale C2. Work Values - Socializing

7. Work that seems important and interesting to me.
9. Opportunity for promotion and advancement, in the long run.
10. Meeting and working with sociable, friendly people.

TABLE 3 (Continued)

Scale C3. Work Values - Other

1. Previous work experience in the area.
2. Relative or friend in the same line of work.

Scale D1. Motivation to Learn

85. When I get a question wrong on a test, I try to find out the right answer.
36. When I make mistakes in my school work, it helps me to learn and improve.
8. When my teachers point out my mistakes, I try to improve.
55. If a problem is really difficult, I will work harder to get it right.
29. When my teachers correct my work, I can learn a lot from it.
43. I usually check my work before I turn it in.
64. I like having teachers check my work.
57. If I get something wrong, I like to know why it is wrong.
93. I try to do a good job on school work and not just "get by."

Scale D2. Social Confidence

25. It is easy for me to make new friends.
11. It is usually easy for me to have a conversation with strangers.
60. I enjoy meeting and talking with new people.
18. It is hard for me to make small talk in group of people.*

Scale D3. Trust in Others

35. You can count on most people to do what they say they will do.
21. Most people are honest.
70. Most people are pretty cooperative.
42. Most people do not mind doing favors for others.
7. People keep their promises most of the time.

Scale D4. Peer Support

46. Sharing my thoughts with someone else helps me to deal with my problems.
56. I have a friend that I can tell my troubles to.
53. When a friend is upset, I can help him or her to feel better.

Scale D5. Confidence in Career Goals.

12. I have gotten some ideas and information about the work I would like to do as an adult.
19. I have a clear idea of the kind of career I want.
26. I have several skills that will help me to get a job.
17. There is a lot of unemployment, but I will be able to get a decent job when I finish my education.

TABLE 3 (Continued)

Scale D6. Reaction to Pressure and Stress

27. When people expect too much from me, I do not perform well.
41. If I have to work under pressure, I start to make mistakes.
62. I try to avoid really hard courses.
52. I go along with my friends, even when I do not want to.
51. Sometimes I make promises that I know I will not be able to keep.

Scale D7. Disaffection

79. When I am working for someone else, I just want to get the job done, no matter how good or bad it is.
73. You have to keep quiet and not stir things up in order to succeed.
97. It is hard for me to be friends with people outside my own group.
91. To succeed in life, you have to know the right people.
78. I deserve higher grades than I get.
75. I would be embarrassed to walk into a store and ask if they had any summer jobs.

Scale D8. Confidence in Job-Seeking Skills

4. I know how to present myself to a job interviewer.
5. I have learned about how to find jobs I might want.

Scale D9. Privacy of Feelings

92. I keep my feelings to myself.
14. When I have a personal problem, I keep it to myself.

NOTES:

1. The numbers in front of each item indicates its original number on the prototype questionnaire form.

2. The scales are based on factors derived from the factor analysis of the total group. They are in the order in which the factors were extracted for each part.

3. Within each scale, items are in order according to their loadings on the factor, highest loadings first.

4. Scale scores were computed using the following scale values for Scales A1 to A4, B1 to B4 and D1 to D9: Strongly agree = 6, Agree = 5, Somewhat agree = 4, Somewhat disagree = 3, Disagree = 2, and Strongly disagree = 1. However, items marked with an asterisk (*), were reverse scored, i.e,, for those items Strongly agree = 1, and so on.

TABLE 3 (Continued)

NOTES (Continued):

5. For occupational students, the A scale items asked them to rate their occupational school and the B scale items, their home school. Non-occupational students were asked to rate only their home school. Their answers were duplicated for the A and B scales in the data base for ease of analysis and comparison.

6. For all A, B, and D scales, except three, a higher score indicates a more positive attitude. For Scales D6, D7, and D9, a higher score indicates a more negative attitude, i.e., more giving into pressure, more disaffection, and more desire to keep feelings private, respectively.

7. For C scale items, the lead question was, "How important is each of the following factors in deciding the kind of work you plan to be doing for most of your life?" For these items, the response scale was Very important = 3, Somewhat important = 2, and Not important = 1.

TABLE 4

COEFFICIENT ALPHA FOR SCALES FOR THREE GROUPS

	Scale	All students	Occupational students	Non-occup'l acad-gen'l students
A1.	General attitude towards school experience.....	.79	.70	.77
A2.	Attitude towards teachers and programs.....	.76	.68	.73
A3.	School social relations.....	.70	.66	.62
A4.	Student-adult relations.....	.72	.67	.64
B1.	General attitude towards school experience.....	.81	.85	.77
B2.	Attitude towards teachers and program.....	.80	.82	.73
B3.	School social relations.....	.72	.76	.62
B4.	Student-adult relations.....	.67	.66	.64
C1.	Work values - materialistic.....	.52	.54	.57
C2.	Work values - socializing.....	.38	.51	.18
C3.	Work values - other.....	.33	.17	.40
D1.	Motivation to learn.....	.80	.82	.81
D2.	Social confidence.....	.75	.70	.80
D3.	Trust in others.....	.75	.73	.78
D4.	Peer support.....	.64	.64	.69
D5.	Confidence in career goals.....	.72	.69	.71
D6.	Reaction to pressure and stress..	.62	.64	.58
D7.	Disaffection.....	.58	.61	.55
D8.	Confidence in job-seeking skills.	.69	.61	.78
D9.	Privacy of feelings.....	.70	.65	.78

NOTES:

1. Except for Scales C2 and C3, reliabilities range from a low of .52 to a high of .85.

2. The A scales consist of items which asked the occupational students to rate their occupational school and the home school students to rate their home schools. The B scales consist of items which asked the occupational students to rate their home schools. For non-occupational students, the A items and the B item responses are identical. Therefore, their reliabilities are identical for the corresponding scales.

3. The third column includes only those students in home schools who were enrolled in academic or general programs. Home school students in vocational courses (e.g., business, typing, home economics) were excluded from this analysis.

TABLE 5

INTERCORRELATIONS AMONG A AND B SCALE SCORES

For occupational students

Scale								
A1	70							
A2	71	68						
A3	54	43	66					
A4	49	55	58	67				
B1	13	15	25	15	85			
B2	04	16	14	10	84	82		
B3	01	04	27	11	72	60	76	
B4	02	09	12	19	60	63	63	66
	A1	A2	A3	A4	B1	B2	B3	B4

For non-occupational-academic-general students

Scale				
A1	77			
A2	73	73		
A3	63	61	62	
A4	42	47	57	64
	A1	A2	A3	A4

NOTES:

1. Decimal points have been omitted. Scale reliabilities (coefficient alpha) have been placed in the diagonals in place of 1.00's.

2. In this analysis, the occupational student N was approximately 350. For this N, a correlation of about + or - 0.16 is significant at the .001 level. For non-occupational-academic-general students, the N is approximately 230. For this N, a correlation of + or - 0.20 is significant at the .001 level.

TABLE 6

INTERCORRELATIONS AMONG D SCALE SCORES

Scale									
D1	80								
D2	23	75							
D3	39	18	75						
D4	35	31	22	64					
D5	39	21	26	16	72				
D6	-27	-17	-13	-04	-21	62			
D7	21	-27	-10	-19	-12	34	58		
D8	19	31	13	14	38	-08	-07	69	
D9	-09	-25	-09	-37	-04	00	21	-10	70
	D1	D2	D3	D4	D5	D6	D7	D8	D9

NOTES:

1. Decimal points have been omitted. Reliabilities (coefficient alpha) have been put in the diagonals in place of 1.00's.

2. The N for the total group of students in this table is approximately 780. For this N, a correlation of about + or - 0.12 is significant at the .001 level.

TABLE 7

COMPARATIVE SCALE SCORES FOR THREE GROUPS

Scale	All occupational students (A)	All non-occup'l students (B)	Acad-gen'l non-occup'l students (C)	Significance difference between A and B	Significance difference between A and C
A1	5.11 0.62	4.29 0.86	4.39 0.84	<.0001	<.0001
A2	5.17 0.61	4.55 0.73	4.64 0.66	<.0001	<.0001
A3	4.13 0.78	3.39 0.81	3.51 0.77	<.0001	<.0001
A4	4.52 0.95	3.68 0.97	3.82 0.91	<.0001	<.0001
B1	3.92 1.18	4.29 0.86	4.39 0.84	<.0001	<.0001
B2	4.17 0.99	4.55 0.73	4.64 0.66	<.0001	<.0001
B3	3.21 1.04	3.39 0.82	3.51 0.77	.0056	.0002
B4	3.39 1.10	3.68 0.97	3.82 0.91	.0001	<.0001
C1	2.72 0.32	2.65 0.34	2.62 0.37	.0027	.0004
C2	2.77 0.32	2.79 0.28	2.78 0.28	.3462	.5778
C3	2.23 0.49	1.99 0.54	1.92 0.54	<.0001	<.0001
D1	4.54 0.69	4.49 0.60	4.49 0.63	.3157	.4677
D2	4.15 0.92	4.15 1.01	4.26 0.99	.9676	.1911
D3	3.82 0.78	3.82 0.77	3.87 0.74	.9687	.4517

TABLE 7 (Continued)

Scale	All occupational students (A)	All non-occup'l students (B)	Acad-gen'l non-occup'l students (C)	Significance difference between A and B	Significance difference between A and C
D4	4.65 0.94	4.68 0.90	4.68 0.89	.6017	.6160
D5	4.84 0.79	4.58 0.90	4.51 0.87	<.0001	<.0001
D6	3.45 0.91	3.28 0.83	3.07 0.82	.0069	<.0001
D7	3.07 0.80	2.86 0.69	2.75 0.66	.0001	<.0001
D8	4.48 0.99	4.17 1.17	4.06 1.18	.0001	<.0001
D9	3.99 1.15	3.78 1.23	3.80 1.23	.0153	.0664

NOTES:

1. In columns A, B, and C, the top figure in each cell is the mean. The bottom figure is the standard deviation.

2. Column B includes all non-occupational students (i.e., all students responding to the questionnaire in home schools). Column C includes only those home school students enrolled in academic or general programs. It excludes home school students in vocational courses (e.g., business, typing, home economics).

3. Scales A1 through B4 and D1 through D9 have a scale score range from 1.00 to 6.00. Scales C1 through C3 have a scale score range of 1.00 through 6.00.

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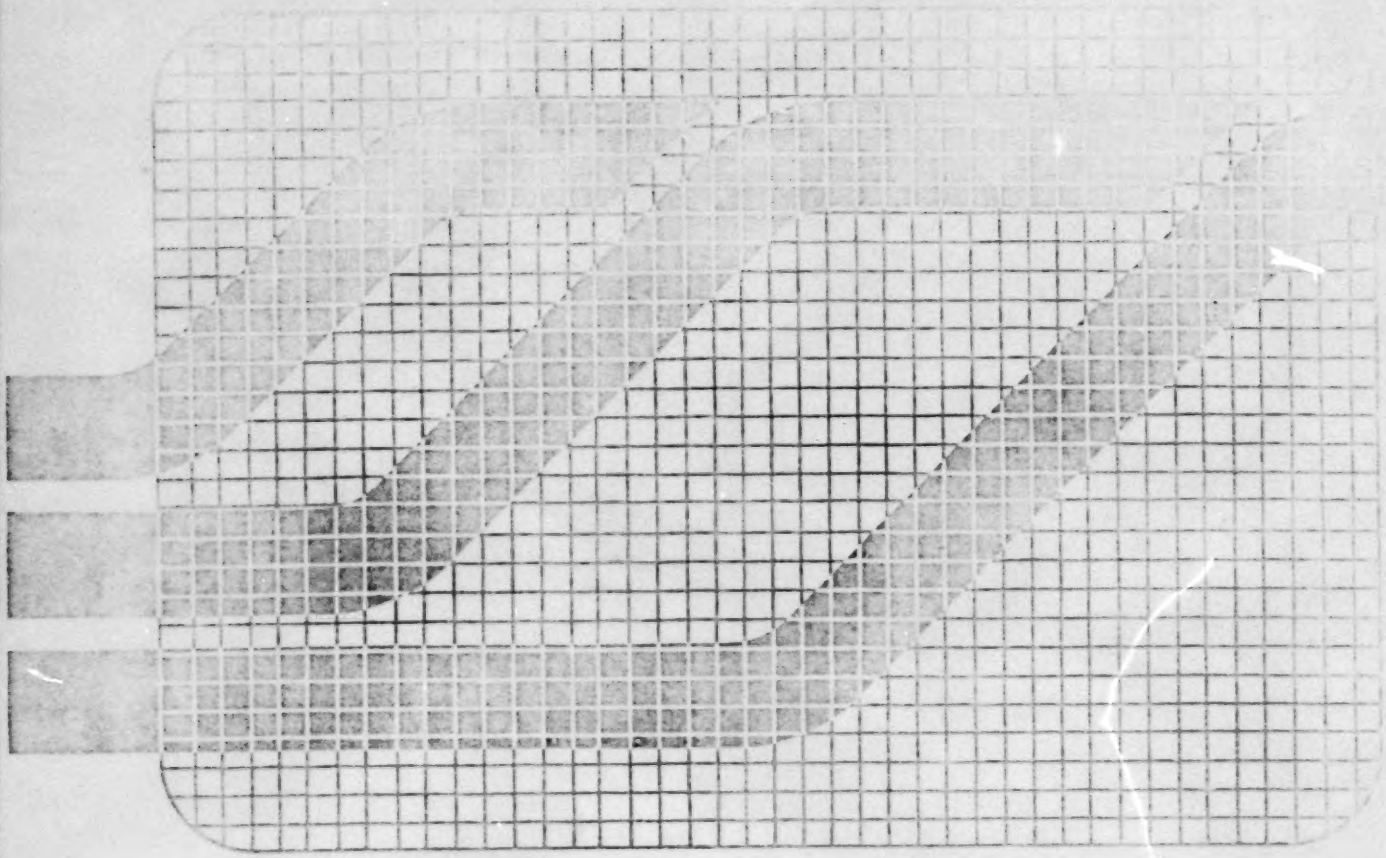

SURVEY OF STUDENTS

Cornell University

Institute for Occupational Education

December 1980

Form A 36

PART A. YOUR OCCUPATIONAL HIGH SCHOOL

Think about your experience as a student in this occupational high school.

How strongly do you agree with the statements below about your occupational high school. Circle one choice for each item.

	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
1. I enjoy going to this school.....	6	5	4	3	2	1
2. I feel like a real part of what goes on at this school.....	6	5	4	3	2	1
3. Most of my classes here are a waste of time.....	6	5	4	3	2	1
4. Teachers here put students down.....	6	5	4	3	2	1
5. Students treat each other with respect at this school.....	6	5	4	3	2	1
6. If another student at this school found something of mine, he or she would probably return it.....	6	5	4	3	2	1
7. My teachers at this school understand the problems of students pretty well.....	6	5	4	3	2	1
8. Sometimes I feel out of place at this school.....	6	5	4	3	2	1
9. Rules are not enforced fairly here.....	6	5	4	3	2	1
10. Most students here do not mind following the school's rules.....	6	5	4	3	2	1
11. The adults here do not trust the students...	6	5	4	3	2	1
12. Students are treated as adults here.....	6	5	4	3	2	1

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1				5					10		12

1:9-20

	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
13. I look forward to going to this school most days.....	6	5	4	3	2	1
14. The things I learn at this school are important for my future.....	6	5	4	3	2	1
15. Teachers at this school will take time to help the students.....	6	5	4	3	2	1
16. Doing well in classes at this school is not worth the effort.....	6	5	4	3	2	1
17. Teachers at this school encourage us to do our best.....	6	5	4	3	2	1
18. Students here will help each other to learn.	6	5	4	3	2	1

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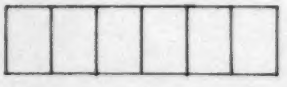

1:21-26

PART B. YOUR HOME HIGH SCHOOL

Now think about your experience as a student in your home school.

How strongly do you agree with the statements below about your home school? Circle one choice for each item.

	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
1. I enjoy going to this school.....	6	5	4	3	2	1
2. I feel like a real part of what goes on at this school.....	6	5	4	3	2	1
3. Most of my classes here are a waste of time.....	6	5	4	3	2	1
4. Teachers here put students down.....	6	5	4	3	2	1
5. Students treat each other with respect at this school.....	6	5	4	3	2	1
6. If another student at this school found something of mine, he or she would probably return it.....	6	5	4	3	2	1
7. My teachers at this school understand the problems of students pretty well.....	6	5	4	3	2	1
8. Sometimes I feel out of place at this school.....	6	5	4	3	2	1
9. Rules are not enforced fairly here.....	6	5	4	3	2	1
10. Most students here do not mind following the school's rules.....	6	5	4	3	2	1
11. The adults here do not trust the students...	6	5	4	3	2	1
12. Students are treated as adults here.....	6	5	4	3	2	1

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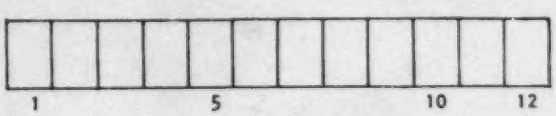

1:27-38

	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
13. I look forward to going to this school most days.....	6	5	4	3	2	1
14. The things I learn at this school are important for my future.....	6	5	4	3	2	1
15. Teachers at this school will take time to help the students.....	6	5	4	3	2	1
16. Doing well in classes at this school is not worth the effort.....	6	5	4	3	2	1
17. Teachers at this school encourage us to do our best.....	6	5	4	3	2	1
18. Students here will help each other to learn.	6	5	4	3	2	1

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13 18

1:39-44

PART C. YOUR FUTURE WORK

How important is each of the following factors in deciding the kind of work you plan to be doing for most of your life?

Circle one choice for each item.

	Very important	Somewhat important	Not important
1. Previous work experience in the area.....	3	2	1
2. Relative or friend in the same line of work.....	3	2	1
3. Job openings available in the occupation.....	3	2	1
4. Work matches a hobby interest of mine.....	3	2	1
5. Good income to start or within a few years.....	3	2	1
6. Job security and permanence.....	3	2	1
7. Work that seems important and interesting to me.....	3	2	1
8. Freedom to make my own decisions.....	3	2	1
9. Opportunity for promotion and advancement, in the long run.....	3	2	1
10. Meeting and working with sociable, friendly people....	3	2	1

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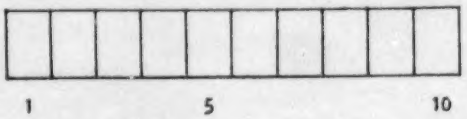

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PART D. YOUR OPINIONS

This part of the survey asks you to agree or disagree with statements about many different things.

Circle one choice for each statement.

	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
1. My overall high school program has been worthwhile.....	6	5	4	3	2	1
2. At the end of the school day, I usually feel that I have done something worthwhile.	6	5	4	3	2	1
3. In my life, I rarely get to do what I want to do.....	6	5	4	3	2	1
4. I know how to present myself to a job interviewer.....	6	5	4	3	2	1
5. I have learned about how to find jobs I might want.....	6	5	4	3	2	1
6. When someone criticizes me unfairly, I can handle it without getting mad.....	6	5	4	3	2	1
7. People keep their promises most of the time	6	5	4	3	2	1
8. When my teachers point out my mistakes, I try to improve.....	6	5	4	3	2	1
9. While it may be important to help others, first you have to look out for yourself....	6	5	4	3	2	1
10. When you work with others, it is easy to get them to do their fair share.....	6	5	4	3	2	1
11. It is usually easy for me to have a conversation with strangers.....	6	5	4	3	2	1
12. I have gotten some ideas and information about the work I would like to do as an adult.....	6	5	4	3	2	1

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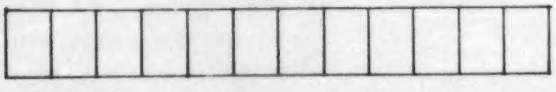

1:55-66

	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
13. I sometimes get into an argument without thinking how it will affect other people...	6	5	4	3	2	1
14. When I have a personal problem, I keep it to myself.....	6	5	4	3	2	1
15. My school work is evaluated fairly.....	6	5	4	3	2	1
16. When someone gives me a raw deal, I usually try to get even.....	6	5	4	3	2	1
17. There is a lot of unemployment, but I will be able to get a decent job when I finish my education.....	6	5	4	3	2	1
18. It is hard for me to make small talk in a group of people.....	6	5	4	3	2	1
19. I have a clear idea of the kind of career I want.....	6	5	4	3	2	1
20. When someone disagrees with me, it makes me angry.....	6	5	4	3	2	1
21. Most people are honest.....	6	5	4	3	2	1
22. When my teachers point out my mistakes, I usually agree with them.....	6	5	4	3	2	1
23. I am willing to work for something that others will enjoy, even if I will not be able to use it myself.....	6	5	4	3	2	1
24. Every time I try to get ahead, something or somebody stops me.....	6	5	4	3	2	1
25. It is easy for me to make new friends.....	6	5	4	3	2	1
26. I have several skills that will help me to get a job.....	6	5	4	3	2	1

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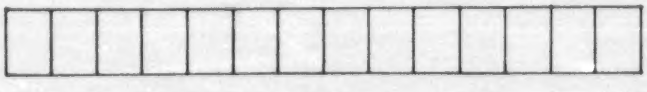

1:67-80

13 20 26

	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
27. When people expect too much from me, I do not perform well.....	6	5	4	3	2	1
28. When we work in a group, a few students end up doing most of the work.....	6	5	4	3	2	1
29. When my teachers correct my work, I can learn a lot from it.....	6	5	4	3	2	1
30. Cheating on tests or homework gives you an unfair advantage over other students....	6	5	4	3	2	1
31. Planning only makes a person unhappy since plans hardly ever work out anyway.....	6	5	4	3	2	1
32. It is hard for me to talk to people on the telephone.....	6	5	4	3	2	1
33. I would not apply for a job if several other people had applied for it already....	6	5	4	3	2	1
34. When something at school upsets me, I really show it.....	6	5	4	3	2	1
35. You can count on most people to do what they say they will do.....	6	5	4	3	2	1
36. When I make mistakes in my school work, it helps me to learn and improve.....	6	5	4	3	2	1
37. Younger children have learned things from the example I set.....	6	5	4	3	2	1
38. People who accept their condition in life are happier than those who try to change things.....	6	5	4	3	2	1
39. When I think I deserve a better grade, I go see the teahcer about it.....	6	5	4	3	2	1
40. I can usually judge how long it will take to do a good job on an assignment.....	6	5	4	3	2	1

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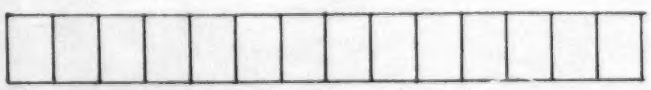

2:9-22

		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
41.	If I have to work under pressure, I start to make mistakes.....	6	5	4	3	2	1
42.	Most people do not mind doing favors for others.....	6	5	4	3	2	1
43.	I usually check my work before I turn it in.	6	5	4	3	2	1
44.	If something better comes up, I will break a date or appointment.....	6	5	4	3	2	1
45.	Good luck is more important than hard work for success.....	6	5	4	3	2	1
46.	Sharing my thoughts with someone else helps me to deal with my problems.....	6	5	4	3	2	1
47.	I have talked to people about different career opportunities.....	6	5	4	3	2	1
48.	I do not mind having the teacher watch me while I am working.....	6	5	4	3	2	1
49.	I do not mind lending things to my friends..	6	5	4	3	2	1
50.	I do not care about my grades.....	6	5	4	3	2	1
51.	Sometimes I make promises that I know I will not be able to keep.....	6	5	4	3	2	1
52.	I go along with my friends, even when I do not want to.....	6	5	4	3	2	1
53.	When a friend is upset, I can help him or her to feel better.....	6	5	4	3	2	1
54.	I do not know where to look for a job.....	6	5	4	3	2	1
55.	If a problem is really difficult, I will work harder to get it right.....	6	5	4	3	2	1

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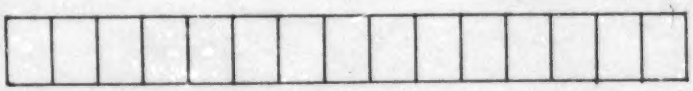

2:23-37

		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
56.	I have a friend that I can tell my troubles to.....	6	5	4	3	2	1
57.	If I get something wrong, I like to know why it is wrong.....	6	5	4	3	2	1
58.	I try to be nice even if I am in a bad mood	6	5	4	3	2	1
59.	I have at least one thing that I do really well, like a sport, a job, or a school subject.....	6	5	4	3	2	1
60.	I enjoy meeting and talking with new people	6	5	4	3	2	1
61.	I am learning the skills I need to get a job.....	6	5	4	3	2	1
62.	I try to avoid really hard courses.....	6	5	4	3	2	1
63.	I do not tell my teachers any more than I have to tell them.....	6	5	4	3	2	1
64.	I like having teachers check my work.....	6	5	4	3	2	1
65.	If I broke something that belonged to someone else, I would tell the owner about it right away.....	6	5	4	3	2	1
66.	If I try hard, things usually work out the way I want.....	6	5	4	3	2	1
67.	I like to sit towards the back of the classroom.....	6	5	4	3	2	1
68.	I know who I would ask for references in applying for a job.....	6	5	4	3	2	1
69.	Sometimes I have felt like quitting school.	6	5	4	3	2	1
70.	Most people are pretty cooperative.....	6	5	4	3	2	1

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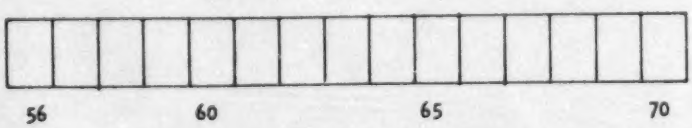

2:38-52

		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
71.	I think that tests in school do not mean much.....	6	5	4	3	2	1
72.	I do not work very hard if I am working in a group.....	6	5	4	3	2	1
73.	You have to keep quiet and not stir things up in order to succeed.....	6	5	4	3	2	1
74.	It is often hard for me to express myself..	6	5	4	3	2	1
75.	I would be embarrassed to walk into a store and ask if they had any summer jobs..	6	5	4	3	2	1
76.	If things are not going well for me at school, I sometimes just do not go.....	6	5	4	3	2	1
77.	When people do you a favor, they usually want something in return.....	6	5	4	3	2	1
78.	I deserve higher grades than I get.....	6	5	4	3	2	1
79.	When I am working for someone else, I just want to get the job done, no matter how good or bad it is.....	6	5	4	3	2	1
80.	I usually do better in class when I study hard.....	6	5	4	3	2	1
81.	I make a good impression over the telephone	6	5	4	3	2	1
82.	I do not like applying for jobs.....	6	5	4	3	2	1
83.	I can really get mad sometimes when things are not going my way at school.....	6	5	4	3	2	1
84.	I can tell my personal problems to at least one of my teachers.....	6	5	4	3	2	1
85.	When I get a question wrong on a test, I try to find out the right answer.....	6	5	4	3	2	1

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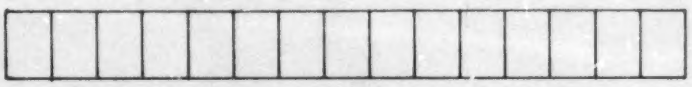

2:53-67

		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
86.	I can make good decisions about my own life	6	5	4	3	2	1
87.	I like to share my ideas with other people.	6	5	4	3	2	1
88.	I have several skills that will help me to get a job.....	6	5	4	3	2	1
89.	When something at school makes me mad, I just walk away.	6	5	4	3	2	1
90.	I know when I have done a good job on an assignment.....	6	5	4	3	2	1
91.	To succeed in life, you have to know the right people.....	6	5	4	3	2	1
92.	I keep my feelings to myself.....	6	5	4	3	2	1
93.	I try to do a good job on school work and not just "get by".....	6	5	4	3	2	1
94.	I try to plan my work ahead.....	6	5	4	3	2	1
95.	I do not mind asking other people for help.	6	5	4	3	2	1
96.	I do not mind giving a talk in front of the class.....	6	5	4	3	2	1
97.	It is hard for me to be friends with people outside of my own group.....	6	5	4	3	2	1
98.	When I try, I can usually get people to understand me.....	6	5	4	3	2	1

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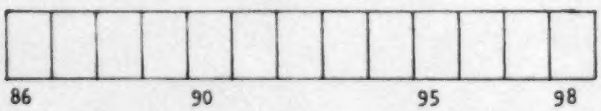

2:68-80

PART E. FACTS ABOUT YOU

1. What is your sex? Check one.

_____ 1. Male

_____ 2. Female

2. When were you born? Check one year.

_____ 1. 1960 or before

_____ 2. 1961

_____ 3. 1962

_____ 4. 1963

_____ 5. 1964

_____ 6. 1965

_____ 7. 1966 or later

3. How do you describe yourself? Check one.

_____ 1. American Indian, Alaskan

_____ 2. Black, not Hispanic

_____ 3. Mexican-American, Puerto Rican, Cuban, other Hispanic

_____ 4. Asian, Pacific Islander, Oriental

_____ 5. White, not Hispanic

_____ 6. Other - specify _____

4a. Are you planning to train for an occupational speciality in your program at your occupational high school? Check one and follow the instructions next to your choice.

_____ 1. No.....Skip Question 4b on the next page. Continue with Question 5.

_____ 2. Yes....Answer Question 4b on the next page.

Do not write below this line

								3:9-15
1	2	3	4a	4b				

4b. Major field. What occupational speciality are you planning to train for? Check one of the specialities in the list below. For example, if you are planning to major in appliance repair, check choice C under number 7.

If your program is not included in this list, try to check the one that comes closest to describing your program.

1. Agricultural education

_____ A. Prevocational studies in agriculture
_____ B. Agriculture production
_____ C. Agriculture mechanics, farm mechanics
_____ D. Ornamental horticulture
_____ E. Conservation
_____ F. Agriculture technology
_____ G. Other agriculture program

2. Distributive education

_____ A. Prevocational studies in distributive education
_____ B. Advertising services and sales
_____ C. Apparel, fasion merchandising
_____ D. Automotive, petroleum, service station management
_____ E. Food distribution and marketing
_____ F. General merchandising and sales, wholesaling
_____ G. Real estate
_____ H. Other distributive education program

3. Health occupations education

_____ A. Prevocational studies in health education
_____ B. Dental assisting
_____ C. Dental lab technology, dental lab assisting
_____ D. Medical lab assisting
_____ E. Nursing, licensed practical
_____ F. Nurse assisting, nurse aide
_____ G. Home health assisting
_____ H. Medical assisting (office)
_____ I. Other health occupation program

4. Home economics education

_____ A. Prevocational studies in home economics
_____ B. Care and guidance of children
_____ C. Clothing and textiles, clothing management, dry cleaning, upholstering, textile production and fabrication
_____ D. Food services, food management, quantity food occupations
_____ E. Other home economics program

5. Business and office education

_____ A. Prevocational studies in business and office education
_____ B. Bookkeeping and accounting
_____ C. Data processing, xeroxing
_____ D. General office, typing, filing, clerical
_____ E. Stenographic and secretarial
_____ F. Supervision, business administration
_____ G. Office-related technology
_____ H. Other business or office education program

6. Technical education

_____ A. Prevocational studies in technical fields
_____ B. Architectural technology, drafting
_____ C. Chemical technology, industrial chemistry
_____ D. Civil technology, structure drafting
_____ E. Electrical technology
_____ F. Electronic technology, computer circuitry
_____ G. Electro-mechanical technology
_____ H. Mechanical technology, mechanical design
_____ I. Other technical education program

7. Trade, industrial, or service occupations

_____ A. Prevocational studies in this area
_____ B. Air conditioning, refrigeration, heating
_____ C. Appliance repair
_____ D. Auto body and fender repair
_____ E. Auto mechanics, diesel
_____ F. Aviation operations, mechanics, and services
_____ G. Commercial arts, advertising, interior decorating
_____ H. Commercial photography
_____ I. Carpentry, building construction
_____ J. Masonry, bricklaying
_____ K. Plumbing and pipefitting
_____ L. Glazing, glass repair or replacement
_____ M. Building maintenance, custodial services
_____ N. Drafting (architectural, electrical, or mechanical)
_____ O. Electrical occupations, commercial or residential
_____ P. Electronics, radio-tv service, industrial electronics
_____ Q. Graphic arts, offset litho, printing
_____ R. Maritime occupations, fisheries, boat building
_____ S. Machine shop, machine tool operator
_____ T. Sheet metal
_____ U. Welding and cutting metals
_____ V. Metalworking, pattern making
_____ W. Cosmetology
_____ X. Other trade, industrial, or service occupation

5. What courses have you passed in junior high and high school since the start of the ninth grade? Circle one answer for each course listed below.

Courses	Number of courses passed: None	One	Two	Three or more
1. Business	0	1	2	3+
2. English				
a. Regular	0	1	2	3+
b. Regents	0	1	2	3+
c. Advanced placement	0	1	2	3+
3. History and Social Studies				
a. Regular	0	1	2	3+
b. Regents	0	1	2	3+
c. Advanced placement	0	1	2	3+
4. Home Economics	0	1	2	3+
5. Industrial Arts	0	1	2	3+
6. Foreign languages (Spanish, Latin, etc.)	0	1	2	3+
7. Mathematics				
a. Regular	0	1	2	3+
b. Regents	0	1	2	3+
c. Advanced placement	0	1	2	3+
8. Office or Secretarial	0	1	2	3+
9. Sciences (Biology, Physics, etc.)	0	1	2	3+

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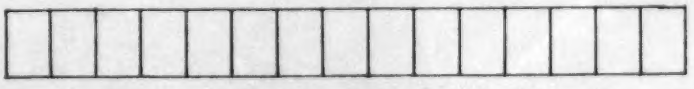

3:16-30

1 2a 2b 2c 3a 3b 3c 4 5 6 7a 7b 7c 8 9

6. What have your grades been like so far in high school? Check one.

_____ 1. Mostly A's

_____ 2. Mostly A's and B's

_____ 3. Mostly B's

_____ 4. Mostly B's and C's

_____ 5. Mostly C's

_____ 6. Mostly C's and D's

_____ 7. Mostly D's

7. What do you plan to do during the first year after you graduate from high school? Check all below that apply to you.

_____ 1. Enter the military service

_____ 2. Become a full-time homemaker

_____ 3. Work full-time

_____ 4. Work part-time

_____ 5. Go to a vocational or technical school

_____ 6. Go to a business school

_____ 7. Go to a 4-year college or university

_____ 8. Go to a 2-year, junior, or community college

_____ 9. Enter an on-the-job training program or apprenticeship

____ 10. Don't know

____ 11. Other - specify _____

8. How many hours do you normally work at a paid job during the school year? Check one.

_____ 1. None

_____ 2. 1 to 5 hours a week

_____ 3. 6 to 10 hours a week

_____ 4. 11 to 15 hours a week

_____ 5. 16 to 20 hours a week

_____ 6. Over 20 hours a week

Do not write below this line

	1				1				1				3:31-43
6	7											8	

9. How much school have your parents or guardians completed? Circle one choice for Father and one for Mother.

FATHER	MOTHER	
01	01	Some high school
02	02	High school graduate or equivalent
03	03	Some courses in a 2-year or 4-year college
04	04	Associate degree from a 2-year or 4-year college
05	05	College graduate, bachelor's degree
06	06	Some graduate school
07	07	Graduate degree such as a Master's or Doctor's degree (M.A., Ph.D., M.D., D.D.S, etc.)
08	08	Other - specify _____
09	09	Don't know
10	10	Does not apply

GO ON TO THE NEXT PAGE

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☐☐	☐☐	☐☐	☐☐	3:44-51
9F	9M	10F	10M	

10. This question asks about the type of work which your parents or guardians do.

In the column of numbers under FATHER, circle the number for the type of work that your father or male guardian does. Then under MOTHER, circle the number for the type of work that your mother or female guardian does. The exact job may not be listed, so circle the one that comes closest.

If either of your parents or guardians is out of work, retired, or deceased, then mark the kind of work that he or she usually does, or used to do.

	FATHER	MOTHER
CLERICAL such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent	01	01
CRAFTSMAN such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter	02	02
FARMER, FARM MANAGER	03	03
HOMEMAKER OR HOUSEWIFE	04	04
LABORER such as construction worker, car washer, sanitary worker, farm laborer	05	05
MANAGER, ADMINISTRATOR such as sales manager, office manager, school administrator, buyer, restaurant manager, government official	06	06
MILITARY such as career officer, enlisted man or woman in the armed forces	07	07
OPERATIVE such as meat cutter; assembler, machine operator, welder; taxicab, bus, or truck driver, gas station attendant	08	08
PROFESSIONAL such as accountant, artist, clergyman, dentist, physician, registered nurse, engineer, lawyer, librarian, teacher, writer, scientist, social worker, actor, actress	09	09
PROPRIETOR OR OWNER such as owner of a small business, contractor, restaurant owner	10	10
PROTECTIVE SERVICE such as detective, policeman or guard, sheriff, fireman	11	11
SALES such as salesman, sales clerk, advertising or insurance agent, real estate broker	12	12
SERVICE such as barber, beautician, practical nurse, private household worker, janitor, waiter	13	13
TECHNICAL such as draftsman, medical or dental technician, computer programmer	14	14

Thank you for your help!